Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims of the application.

Listing of Claims:

1. (Original) A polymer composition comprising multistage polymer particles; wherein each of said multistage polymer particles comprises:

a) a first polymer comprising:

i) a polymerized unit of a multiethylenically unsaturated monomer, and

ii) at least one pendant absorbing group selected from the group consisting of phosphorus acid groups, phosphorus acid full-ester groups, polyacid sidechain groups, and mixtures thereof,

wherein said first polymer has a glass transition temperature in the range of from -60°C to 35°C; and

b) a second polymer having a glass transition temperature in the range of from -60°C to 35°C, wherein said second polymer is substantially free of said at least one pendant absorbing group;

wherein the average weight ratio of said first polymer to said second polymer is in the range of from 1:2 to 1:20.

2. (Original) A composite particle comprising:

a) an inorganic particle having a surface; and

b) a plurality of multistage polymer particles attached to said surface of said inorganic particle, each of said multistage polymer particles comprising:

i) a first polymer comprising: a polymerized unit of a multiethylenically unsaturated monomer, and at least one pendant absorbing group selected from the group consisting of phosphorus acid groups, phosphorus acid full-ester groups, polyacid sidechain groups, and mixtures thereof, wherein said first polymer has a glass transition temperature in the range of from -60°C to 35°C; and

ii) a second polymer having a glass transition temperature in the range of from -60°C to 35°C, wherein said second polymer is substantially free of said at least one pendant absorbing group;

wherein the average weight ratio of said first polymer to said second polymer is in the range of from 1:2 to 1:20.

3. (Original) An aqueous composition, useful for preparing a dried coating, comprising:

a) a composite particle comprising:

i) an inorganic particle having a surface; and

ii) a plurality of multistage polymer particles absorbed on said surface of said inorganic particle, each of said multistage polymer particles comprising:

a first polymer comprising: a polymerized unit of a multiethylenically unsaturated monomer, and at least one pendant absorbing group selected from the group consisting of phosphorus acid groups, phosphorus acid full-ester groups, polyacid sidechain groups, and mixtures thereof, wherein said first polymer has a glass transition temperature in the range of from -60°C to 35°C; and

a second polymer having a glass transition temperature in the range of from -60°C to 35°C; wherein said second polymer is substantially free of said at least one pendant absorbing group;
wherein the average weight ratio of said first polymer to said second polymer is in the range of from 1:2 to 1:20; and

b) a binder.

4. (Original) The aqueous composition according to claim 3 having a volatile organic compound level of less than 50 gram per liter of said aqueous composition.

5. (Original) A multistage polymer particle comprising:

a) a first polymer comprising:

i) a polymerized unit of a multiethylenically unsaturated monomer, and

ii) at least one complementary functional group,

wherein said first polymer has a glass transition temperature in the range of from -60°C to 120°C; and

b) a second polymer having a glass transition temperature in the range of from -60°C to 35°C, wherein said second polymer is substantially free of said at least one complementary functional group;
wherein the average weight ratio of said first polymer to said second polymer is in the range of from 1:2 to 1:20.

6. (Original) A covalently bonded composite particle comprising:

a) a pigment particle;

b) a first plurality of reacted coupling agents, such that each one of said reacted coupling agents forms a first covalent bond with said pigment particle; and

c) a second plurality of multistage polymer particles, each of said multistage polymer particles comprising:

i) a first polymer comprising:
a polymerized unit of a multiethylenically unsaturated monomer, and
a complementary functional group reacted to form a second covalent bond with a corresponding one of said first plurality of reacted coupling agents;
wherein said first polymer has a glass transition temperature in the range of from -60°C to 120°C; and

ii) a second polymer having a glass transition temperature in the range of from -60°C to 35°C; wherein said second polymer is substantially free of said reacted complementary functional group; and
wherein the average weight ratio of said first polymer to said second polymer is in the range of from 1:2 to 1:20.

7. (Original) An aqueous composition, useful for preparing a dried coating, comprising:

a) a covalently bonded composite particle comprising:

i) a pigment particle;

ii) a first plurality of reacted coupling agents, such that each one of said reacted coupling agents forms a first covalent bond to said pigment particle; and

iii) a second plurality of multistage polymer particles, each of said multistage polymer particles comprising:
a first polymer comprising a polymerized unit of a multiethylenically unsaturated monomer, and a complementary functional group reacted to form a second covalent bond with a corresponding one of said first plurality of reacted coupling agents; wherein said first polymer has a glass transition temperature in the range of from -60°C to 120°C; and
a second polymer having a glass transition temperature in the range of from -60°C to 35°C; wherein said second polymer is substantially free of said reacted complementary functional group;
wherein the average weight ratio of said first polymer to said second polymer is in the range of from 1:2 to 1:20; and

b) a binder.

8. (Original) The aqueous composition according to claim 7 having a volatile organic compound level of less than 50 gram per liter of said aqueous composition.

9. (Canceled).

10. (Original) A composite particle comprising:

a) an inorganic particle having a surface; and

b) a plurality of polymer particles absorbed on said surface of said inorganic particle, each of said polymer particles having a pendant phosphorus acid full-ester group.